128248

CRA

CONESTOGA-ROVERS & ASSOCIATES
O'Hare Corporate Towers One
10400 W. Higgins Road, Suite 103
Rosemont, Illinois 60018
(708) 299-9933 Fax: (708) 299-6421

June 2, 1994 Reference No. 2372-10

Mr. Anthony Rutter
Director, Waste Management Division
Remedial Project Manager
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, Illinois 60604

Mr. Regan S. Williams
State Project Coordinator
Ohio EPA - Division of
Emergency & Remedial Response
2110 East Aurora Road
Twinsburg, Ohio 44087

Gentlemen:

Re: Quality Assurance Project Plan
Operation, Maintenance and Monitoring Plan
Summit National Superfund Site
Deerfield, Ohio

Attached are Conestoga-Rovers & Associates (CRA) responses to the United States Environmental Protection Agency (USEPA) and Ohio Environmental Protection Agency (OEPA) comments dated May 17, 1994 on Revision 1 to the Quality Assurance Project Plan (QAPP) for the Operation, Maintenance and Monitoring Plan (O&M Plan) for the Summit National Superfund Site (Site) submitted to USEPA and OEPA on April 15, 1994. Also attached are the pages of the QAPP that have been revised to incorporate CRA's responses to USEPA and OEPA comments. In addition, the QAPP has been revised to incorporate the requirements of the Substantive Permit for the Summit National groundwater treatment plant based on our conference call of May 19, 1994. The revised pages are also included in the attachment.

The Summit National Facility Trust will be responding to the OEPA Substantive Permit requirements under separate cover.

June 2, 1994 Reference No. 2372-10

Please feel free to contact Steven Day at (708) 299-9933 if you require additional clarification of CRA's responses, or the undersigned at your convenience.

Yours truly,

CONESTOGA-ROVERS & ASSOCIATES

Stephen Whillier

SW/ko/2

Attachment

cc: Peter Felitti - USEPA Regional Counsel
Assistant Attorney General, Land and Natural Resources Division, US Department of Justice
Supervisor, Office of Corrective Action, Director, State, Ohio Environmental Protection Agency
Christopher Korleski, Attorney General, State of Ohio
Richard McAvoy - Black & Veatch Waste Science Technology, Inc.
Gary Gifford
Patrick S. Steerman
Kenneth A. Walanski
Douglas G. Haynam
Jack Michels
Jeroen Winterink
Steven Day

June 2, 1994 Ref. No. 2372-10

RESPONSES TO USEPA COMMENTS ON THE OPERATIONS, MAINTENANCE AND MONITORING PLAN QUALITY ASSURANCE PROJECT PLAN FOR THE SUMMIT NATIONAL SUPERFUND SITE

1. **USEPA Comment No. 1, Section 12.1.4, Table 12.1, Pages 1 to 2 of 5**

   a) *Clarify if the sampling program for air emissions should be "1 Investigative Sample" and "1 Field Duplicate."*

   b) *Make the QC samples for "WTU, IU" for "Year 2 to 4" and "Year 6 to Termination" the same as those shown for "(system startup to one year)."*

   c) *Include one field duplicate sample and MS/MSD sample with the sediment sample. Change the surface water "QC Samples" to include a field duplicate, filed blank, and MS/MSD samples. For air emissions change "PPVOC" to "PPLVOC."*

   CRA Response

   a) The sampling program for the air emissions monitoring will consist of two investigative samples collected from different components of the reatment system once per year. No revision necessary.

   b) The table has been revised to make the QC samples for the WTU, IU sampling consistent over time.

   c) The requested QC samples associated with the sediment and surface water sampling have been added to the revised table. The parameters for the air emissions samples have been changed to "PPL VOC".

2. **USEPA Comment No. 2, Section 12.3.2, Page 3 of 5**

   Discuss what actions will be taken to modify the target quantitation limits if the OEPA effluent discharge limits are less than those shown in Tables 12.3 and 12.4.

   CRA Response

   As discussed during the May 19, 1994 conference call with CRA, SNFT, USEPA and OEPA, the methods of analysis for the final effluent monitoring of the treatment system will be changed to provide targeted quantitation limits that, with limited exceptions, are at or below the OEPA limits.

However, some of the OEPA limits will be achieved by reporting to the instrument detection limit (IDL) which may be affected by the matrix and may not always be achievable. The OEPA limit for antimony cannot be achieved and, as agreed with USEPA and OEPA on May 19, 1994, the results will be reported to the IDL.

It is apparent that the OEPA discharge requirements were, in most cases, set at the calculated effluent calculations for the treatment system and not to any health or environmental risk based standards. The calculated inorganic compound effluent concentration for the treatment system were, in part, based on worst case anticipated influent dissolved metals concentrations in groundwater. In addition, the treatment system was primarily designed for removal of organics compounds, and not for removal of inorganic compounds. Therefore, the OEPA Substantive Permit discharge limitations for the treatment system may not be appropriate.

3. **USEPA Comment No. 2, Section 12.4.1, Item (IV), Page 1 of 11**

Change "distilled or deionized" to "deionized"

CRA Response

The text has been changed to reflect the comment.

4. **USEPA Comment No. 2, Section 12.12.1, Page 1 of 4**

Change "completeness" to "90 percent".

CRA Response

The text has been changed to reflect the comment.

5. **USEPA Comment No. 5, Table 12.8, After Section 12.7**

Modify the "Parameters" for the sediment and surface water to be consistent with the "Laboratory Parameters" shown in Table 12.1.

CRA Response

"TCL Organics" in Table 12.1 including "TCL VOC, TCL SVOC and TCL Pesticides/PCB" as presented in Table 12.8. However, for clarity, "TCL Organics" in Table 12.1 have been replaced with the parameter groups presented in Table 12.8.

6. **USEPA Comment No. 6, Appendix 12.1, SOP No. CRA/SN-BNA**

Provide an SOP that will allow all of the target PQLs for semi-volatiles to be attained.

CRA Response

The SOP for semivolatile organics compound analysis that was provided with the first revision submittal will allow for all the targeted quantitation limits for Table 12.3 and Table 12.4. However, some of the targeted quantitation limits for the residential well semivolatile organic compounds cannot be attained by the laboratory. For these compounds, the laboratory will report to the method detection limits which are provided as Table 2 in the SOP.

7. **USEPA Comment No. 7, Appendix 12.1, SOP No. QA-104**

Include copies of missing pages 2, 4, 6, 8, and 10 of 11.

CRA Response

This SOP was for Lancaster Laboratories sample receiving procedures. Lancaster Laboratories was identified in the QAPP as providing analysis of acrolein and acrylonitrile. These are compounds which have been ~~detected~~ from the QAPP since they are not required to be monitored in the final effluent samples, as agreed by USEPA and OEPA on May 19, 1994.

8. **USEPA Comment No. 8, Appendix 12.1, SOP No. 0183**

Include copies of missing pages 2, 4, 6, 8, 10, 12, 14, and 16 of 18.

CRA Response

This SOP was for the analysis of acrolein and acrylonitrile which were deleted from the QAPP as detailed in CRA Response number 9, above.

QUALITY ASSURANCE PROJECT PLAN OPERATION, MAINTENANCE AND MONITORING PLAN

Summit National Superfund Site
Deerfield Township of Portage County, Ohio

JUNE 1994

REF. NO. 2372 (35)
This report printed on recycled paper

CONESTOGA-ROVERS & ASSOCIATES

QUALITY ASSURANCE PROJECT PLAN (QAPP)

PROJECT TITLE: Summit National Superfund Site
Operation, Maintenance and Monitoring Plan

PREPARED BY: CONESTOGA-ROVERS & ASSOCIATES (CRA)

Approved By: _____ Date:_____
Chairperson
Summit National Facility Trust
Gary Gifford

Approved By: _____ Date:_____
Project Manager - CRA
Jack Michels

Approved By: _____ Date:_____
QA/QC Officer -
Analytical and Field Activities - CRA
Steven Day

Approved By: _____ Date:_____
Project Manger - NUS
James Lieb

Approved By: _____ Date:_____
QA Officer - NUS
Lisa Manning

Approved By: _____ Date:_____
Project Manager - Pace
Liesa Shanahan

Approved By: _____ Date:_____
QA Officer - Pace
Joe Novotory

Approved By: _____ Date:_____

USEPA Region V
Remedial Project Manager
Anthony Rutter

Approved By: _____ Date:_____

USEPA Region V
Quality Assurance Manager
Willie H. Harris

TABLE OF CONTENTS

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

LIST OF ACRONYMS AND SHORT FORMS

BNA	-	Base-Neutral and Acid Extractable Compounds
°C	-	Degree Centigrade
CRA	-	Conestoga-Rovers & Associates
DQO	-	Data Quality Objective
GC	-	Gas Chromatography
GC/MS	-	Gas Chromatography/Mass Spectrometry
IU	-	Intermediate Unit
MS/DUP	-	Matrix Spike/Laboratory Duplicate
MS/MSD	-	Matrix Spike/Matrix Spike Duplicate
NUS	-	Halliburton NUS Laboratory
OEPA	-	Ohio Environmental Protection Agency
PCB	-	Polychlorinated Biphenyls
PE	-	Performance Evaluation
PPL	-	Priority Pollutant List
QA	-	Quality Assurance
QA/QC	-	Quality Assurance/Quality Control
QAPP	-	Quality Assurance Project Plan
QAS	-	Quality Assurance Section
QC	-	Quality Control
RPD	-	Relative Percent Difference
RPM	-	Remedial Project Manager
Site	-	Summit National Superfund Site
SNFT	-	Summit National Facility Trust
SOP	-	Standard Operating Procedures
SVOC	-	Semi-Volatile Organic Compounds
SW-846	-	SW-846, "Test Methods for Evaluating Solid Waste Physical/Chemical Methods", 3rd Edition, November 1986
TAL	-	Target Analyte List
TCL	-	Target Compound List
USEPA	-	United States Environmental Protection Agency
USU	-	Upper Sharon Unit
VOC	-	Volatile Organic Compounds
WTU	-	Water Table Unit

12.1 PROJECT DESCRIPTION

This QAPP has been developed for and is part of the long term Operation, Maintenance and Monitoring Plan (O&M Plan) for the Site. The project description is presented in Sections 1.0 and 2.0 of the O&M Plan.

The O&M Plan has been prepared pursuant to the requirements of the document "Statement of Work and Appendices to Statement of Work", Summit National Superfund Site, Deerfield Township of Portage County, Ohio printed on December 14, 1989 (Statement of Work).

The final effluent monitoring requirements presented in the QAPP have been prepared pursuant to the Substantive Permit for the Summit National Treatment Plant issued by the Ohio Environmental Protection Agency (OEPA) May 18, 1994 and discussions with OEPA and USEPA on May 19, 1994.

12.1.1 Site Background

A detailed Site background is presented in Section 1.0 of the O&M Plan.

12.1.2 Sampling Network and Rationale

The sampling network and rationale specified by the SOW is presented in Section 8.1 of the O&M Plan.

12.1.3 Project Objectives and Scope

The purpose of the O&M Plan is to provide operation, maintenance and monitoring guidelines for the Site during the period from completion of the remedial construction activities to termination of groundwater extraction, treatment and monitoring at the Site. This QAPP has been prepared in support of the O&M Plan to provide QA/QC procedures and requirements for the Consent Decree monitoring requirements specified in Section 8.1 of the O&M Plan to be performed during the long term operation, maintenance and monitoring of the Site. Specific objectives of the data collection activities include:

i) the annual collection and analysis of one surface water and sediment sample at the confluence of the south and east drainage ditches;

ii) the demonstration of hydraulic containment of Site-related contaminated groundwater in the Water Table Unit (WTU) and the Intermediate Unit (IU) by measurement and analysis of groundwater levels;

iii) the demonstration of reduction of the concentrations of Site-related contaminants in groundwater within the WTU and the IU to concentrations specified by the cleanup standards which are based on an individual 10^{-6} increased lifetime cancer risk for invididual compounds and a comulative non-carcinogence Hazard Index (HI) less than 1 or background, whichever occurs first by analysis of groundwater samples;

iv) the demonstration that the hydraulic and water quality characterization in groundwater within the Upper Sharon Unit (USU) is not significantly impacted by the Site by measurement and analysis of groundwater levels and by analysis of groundwater samples;

v) the demonstration that water quality characteristics in local residential wells are not impacted by the Site by analysis of well water samples; and

vi) the demonstration of the effectiveness of the groundwater treatment system by measuring influent and effluent flow rates, chemical analysis of the treated water effluent and chemical analysis of the emissions from the vapor phase carbon adsorption vents.

The evaluation of the data collected will determine if the groundwater collection and extraction system is performing to its design criteria, whether the contingency measures outlined in Section 8.1.2.5 of the O&M Plan require implementation and at what point in time operation of the WTU and IU extraction systems may be terminated. In addition, compliance with final effluent requirements of the groundwater treatment system will be evaluated by the data.

The Statement of Work required that the final effluent be monitored for the Priority Pollutant List of parameters. However, the Substantive Permit issued by OEPA required that different parameters be monitored. The parameters required to be monitored were from the Target Compound List and Target Analyte List and not the Priority Pollutant List. Consequently, the methods to be used for the analysis of the final effluent will be consistent with the methods to be used for the analysis of the groundwater.

12.1.4 Parameters to be Tested and Frequency

Sample matrices, analytical parameters and frequencies of sample collection are presented in Table 12.1.

TABLE 12.1

SUMMARY OF SAMPLING AND ANALYSES PROGRAM
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Sample Matrix	*Field Parameters* [2]	*Laboratory Parameters*	*Investigative Samples*	*QC Samples* [1] *Field Blanks*	*Field Duplicates*	*Matrix Spike MS/MSD* [3]	*Total Per Round*	*Frequency Per Year*	*Total Per Year*
Groundwater Monitoring During Operation and Maintenance									
WTU, IU Groundwater (system startup to one year)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	44	5	5	3	57	3	171
WTU, IU Groundwater (Year 2 to Year 4)	water level pH SCOND temperature	SSPL [4]	44	5	5	3	57	2	114
WTU, IU Groundwater (Year 6 to Termination)	water level pH SCOND temperature	SSPL	44	5	5	3	57	1	57
USU Groundwater (System startup to one year)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	5	1	1	1	8	2	16
USU Groundwater (Year 2 to Year 4)	water level pH SCOND temperature	SSPL	5	1	1	1	8	1	8

TABLE 12.1

SUMMARY OF SAMPLING AND ANALYSES PROGRAM
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Sample Matrix	*Field Parameters* [2]	*Laboratory Parameters*	*Investigative Samples*	*QC Samples* [1] *Field Blanks*	*Field Duplicates*	*Matrix Spike MS/MSD* [3]	*Total Per Round*	*Frequency Per Year*	*Total Per Year*
USU Groundwater (Year 6 and every 2nd year to termination)	water level pH SCOND temperature	SSPL	5	1	1	1	8	once every 2 years	8 every 2 years
All Monitoring Wells Groundwater (Year 5 and every 5th year to termination)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	49	5	5	3	62	once every 5 years	62 every 5 years
Residential Well Groundwater (system startup to one year)	pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	3	1	1	1	6	2	12
Residential Well Groundwater (Year 2 and every 2nd year until one year after confirmation)	pH SCOND temperature	SSPL	3	1	1	1	6	once every 2 years	6 every 2 years
Sediment (at confluence of south and east drainage ditches)		TCL VOC TCL SVOC TCL Pesticides/PCB	1	0	1	1	3	1	3

TABLE 12.1

SUMMARY OF SAMPLING AND ANALYSES PROGRAM
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Sample Matrix	*Field Parameters* [2]	*Laboratory Parameters*	*Investigative Samples*	*QC Samples* [1] *Field Blanks*	*Field Duplicates*	*Matrix Spike MS/MSD* [3]	*Total Per Round*	*Frequency Per Year*	*Total Per Year*
Surface Water (at confluence of south and east drainage ditches)	pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB	1	1	1	1	4	1	4
<u>Treatment System Monitoring</u>									
Treatment Plant Effluent Water (Month 1)	Influent/Effluent Flow	OEPA VOC [5] OEPA BNA OEPA Metals	1	0	0	0	1	8	8
Treatment Plant Effluent Water (Months 2 to termination)	Influent/Effluent Flow	OEPA VOC OEPA BNA OEPA Metals	1	0	0	0	1	12	12
Treatment Plant Air Emissions (Startup to termination)	Influent/Effluent Flow	PPL [6] VOC/ TO-14 [7]	2	0	0	0	2	1	2

TABLE 12.1

SUMMARY OF SAMPLING AND ANALYSES PROGRAM
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Sample Matrix	*Field Parameters* [2]	*Laboratory Parameters*	*Investigative Samples*	*QC Samples* [1] *Field Blanks*	*Field Duplicates*	*Matrix Spike MS/MSD* [3]	*Total Per Round*	*Frequency Per Year*	*Total Per Year*
Termination Monitoring [8]									
All Monitoring Wells Groundwater (one year prior to termination)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	49	5	5	3	62	4	248
All Monitoring Wells Groundwater (monthly for the first three months once cleanup standards are achieved)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	49	5	5	3	62	3	186
All Monitoring Wells Groundwater (Years 1 and 2 post-termination of extraction system)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	49	5	5	3	62	2	124

TABLE 12.1

SUMMARY OF SAMPLING AND ANALYSES PROGRAM
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Sample Matrix	*Field Parameters* [2]	*Laboratory Parameters*	*Investigative Samples*	*QC Samples* [1] *Field Blanks*	*Field Duplicates*	*Matrix Spike MS/MSD* [3]	*Total Per Round*	*Frequency Per Year*	*Total Per Year*
All Monitoring Wells Groundwater (Year 3 through 5 post-termination of extraction system)	water level pH SCOND temperature	TCL VOC TCL SVOC TCL Pesticides/PCB TAL Inorganics	49	5	5	3	62	1	62

1 One trip blank sample will be shipped with each cooler of monitoring well samples collected for VOC analysis.
2 SCOND = Specific conductance
3 Matrix spike/matrix spike duplicate (MS/MSD) analyses are required for organic analyses. Samples designated for MS/MSD analyses will be collected at a frequency of one per group of twenty (20) or fewer investigative samples. For MS/MSD samples within a water matrix, triple the normal sample volumes will be collected for VOC, and double the normal volumes will be collected for extractable organics and PCB/pesticides. Inorganics analysis will require either MS/MSD or MS and a duplicate sample analysis.
4 A Site-specific parameter list will be developed and submitted to USEPA and OEPA for modification and/or approval at the end of the first year of operation.
5 OEPA = Ohio Environmental Protection Agency Final effluent monitoring requirements.
6 PPL = Priority pollutant list of analytes.
7 TO-14 = "The determination of volatile organic compounds (VOCs) in Ambient Air Using Summa Passivated Canister Sampling and Gas Chromatographic Analysis", USEPA Compedium Method TO-14.
8 Frequency of sampling may change based on the results of monitoring as specified in the Consent Decree.

12.1.5 Data Quality Objectives (DQOs)

Data quality objectives (DQOs) are qualitative and quantitative statements which specify the quality of the data required to support decisions made during investigation activities and are based on the end uses of the data to be collected. As such, different data uses may require different levels of data quality. There are five analytical levels which address various data uses and the QA/QC effort and methods required to achieve the desired level of quality.

DQOs have been established in accordance with the USEPA guidance document entitled "Data Quality Objectives for Remedial Response Activities - Development Process", dated March 1987, in conjunction with the document, "Data Quality Objectives for Remedial Response Activities - Example Scenario RI/FS Activities at a Site with Contaminated Soils and Groundwater", dated March 1987. Reference to these documents ensures that the database developed during the Site activities meets the objectives and quality necessary for its intended use.

DQOs can be classified for the measurement data by defining the level of analytical support assigned to each type of data measurement.

The following defines the different levels of analytical support:

i) Level I - Field screening or analysis using portable instruments;
ii) Level II - Field analyses using more sophisticated portable analytical instruments;
iii) Level III - All analyses performed in off-Site analytical laboratories using EPA procedures other than the Contract Laboratory Program (CLP) Routine Analytical Services (RAS);

iv) Level IV - CLP-RAS performed in a CLP analytical laboratory using CLP procedures; and

v) Level V - Non-standard analytical methods performed in an off-Site laboratory.

Table 12.2 presents the level of analytical support for each group of parameters.

12.1.6 Monitoring Schedule

The monitoring schedule is presented on Figure 8.1 of the O&M Plan.

TABLE 12.2

LEVELS OF DATA QUALITY OBJECTIVES (DQO) ANALYTICAL SUPPORT SUMMIT NATIONAL SUPERFUND SITE DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Matrix	*Analysis*	*Analytical Support*
Sediment	TCL Organics	Level III
Surface Water	TCL Organics	Level III
Groundwater (Quality Monitoring)	TCL Organics	Level III
	TAL Inorganics	Level III
	Water Level	Level I
	pH	Level I
	Specific Conductance	Level I
Groundwater (Residential Wells)	TCL Organics	Level V
	TAL Inorganics	Level V
Effluent Water (Treatment System)	OEPA VOCs	Level III
	OEPA BNAs	Level III
	OPEA Metals	Level III
Air (Treatment System Emissions)	Priority Pollutant Volatile Organic Compounds	Level III

12.2 PROJECT ORGANIZATION AND RESPONSIBILITY

The organization for the key staff with QA/QC responsibilities is presented in Figure 12.1.

A summary of responsibilities of key personnel follows:

Gary Gifford - Trust Chairperson - SNFT (Summit National Facility Trust)

- general overview of the project to ensure that the PRPs objectives are met
- participation in key negotiations with the USEPA
- liaison with USEPA and OEPA
- managerial guidance to the Engineering Consultant's Project Manager
- approval of the QAPP

Jack Michels - Project Manager - CRA

- technical guidance to SNFT
- participation in key technical negotiations with USEPA and SNFT
- liaison with USEPA and OEPA
- approval of the QAPP

Steven Day - QA/QC Officer - Analytical and Field Activities - CRA

- systems audits - laboratory activities
- overview and review field QA/QC
- coordinate supply of performance evaluation samples
- review laboratory QA/QC
- data validation and assessment
- advise on data corrective action procedures
- preparation and review of RD activities reports
- QA/QC representation of project activities
- management of field activities and field QA/QC
- data assessment
- preparation and review of RD activities report
- technical representation of field activities
- preparation of standard operating procedures (SOPs) for field activities
- approval of the QAPP

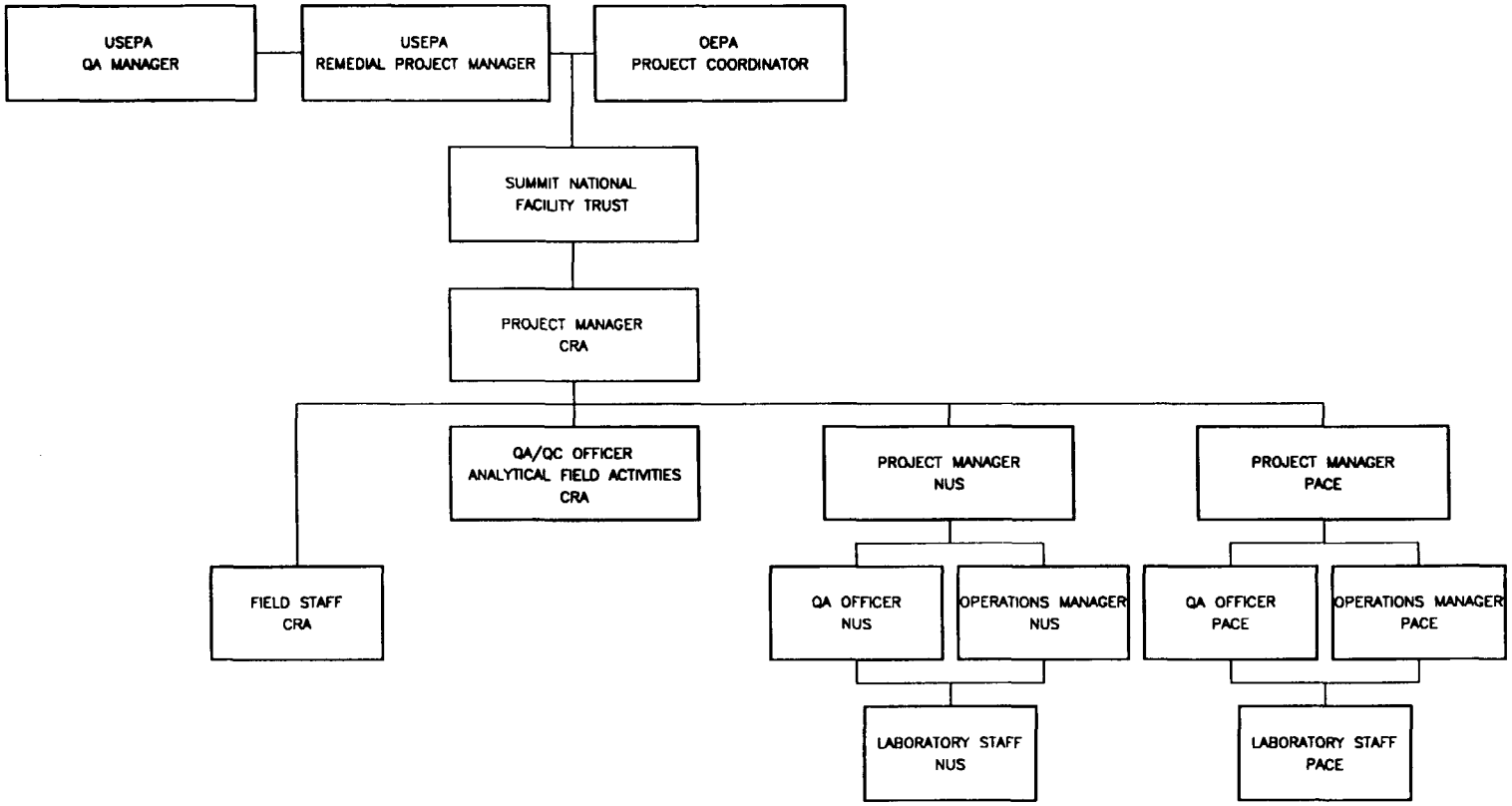

figure 12.1
QA/QC ORGANIZATION
SUMMIT NATIONAL SUPERFUND SITE
Deerfield Township Of Portage County, Ohio

CRA

Halliburton NUS Laboratory (NUS)
5350 Cambells Run Road
Pittsburg, Pennsylvania 15205
(412) 747-2500

- as analytical subcontractor to the Summit National Facility Trust (SNFT), will perform the majority of the chemical analyses of samples collected during the activities.

James Lieb - Project Manager - NUS

- ensures all resources of the laboratory are available on an as-required basis
- overview of final analytical reports
- approval of the QAPP

Chuck Kieda - Operations Manager - NUS

- coordinate laboratory analyses
- supervise in-house chain-of-custody
- schedule sample analyses
- oversee data review
- oversee preparation of analytical reports
- approve final analytical reports prior to submission to the Engineering Consultant

Lisa Manning - QA Officer - NUS

- overview laboratory quality assurance
- overview QA/QC documentation
- conduct detailed data review
- decide laboratory corrective actions, if required
- technical representation of laboratory QA procedures
- preparation of laboratory SOPs
- approval of the QAPP

Terri Wynnik - Sample Custodian - NUS

- receive and inspect the incoming sample containers
- record the condition of the incoming sample containers
- sign appropriate documents
- verify chain of custody and its correctness
- notify Project manager of sample receipt and inspection
- assign a unique identification number and customer number and enter each into the sample receiving log
- with the help of the operations manager, initiate transfer of the samples to appropriate lab sections
- control and monitor access/storage of samples and extracts

Pace, Incorporated (Pace)
1710 Douglas Drive North
Minneapolis, Minnesota 55422
(612) 544-5543

- as subcontractor to NUS will perform the analysis of VOC in air using method TO-14

Liesa Shanahan - Project Manager - Pace

- ensures all resources of the laboratory are available on an as-required basis
- overview of final analytical reports
- approval of the QAPP

Liesa Shanahan - Operations Manager - Pace

- coordinate laboratory analyses
- supervise in-house chain-of-custody
- schedule sample analyses
- oversee data review
- oversee preparation of analytical reports
- approve final analytical reports prior to submission to the Engineering Consultant

Joe Novotny - QA Officer - Pace

- overview laboratory quality assurance
- overview QA/QC documentation
- conduct detailed data review
- decide laboratory corrective actions, if required
- technical representation of laboratory QA procedures
- preparation of laboratory SOPs
- approval of the QAPP

Paul Ernst - Sample Custodian - Pace

- receive and inspect the incoming sample containers
- record the condition of the incoming sample containers
- sign appropriate documents
- verify chain of custody and its correctness
- notify Project manager of sample receipt and inspection
- assign a unique identification number and customer number and enter each into the sample receiving log
- with the help of the operations manager, initiate transfer of the samples to appropriate lab sections
- control and monitor access/storage of samples and extracts

Primary responsibility for project quality rests with CRA's QA/QC Officer - Analytical and Field Activities. Ultimate responsibility for project quality rests with CRA's Project Manager. Independent quality assurance will be provided by the Laboratory Project Manager and QA Officer prior to release of all data to the contractor.

USEPA RESPONSIBILITIES

The USEPA Region V Remedial Project Manager (RPM) will be responsible for the overview of this project. The RPM will also be responsible for providing approval of the QAPP. Anthony Rutter is the RPM for the Remedial Action activities.

The Laboratory Scientific Support Section of the Central Regional Laboratory of USEPA Region V or USEPA Central District Office will be responsible for performance and system audits of the laboratory analyses and field activities. Performance evaluation (PE) audits will be ordered at the discretion of the USEPA.

Additionally, the USEPA Region V Quality Assurance Manager is responsible for reviewing and for providing final approval of the QAPP. Willie H. Harris is Region V QA Manager.

The level of QC effort provided by the laboratory for analysis of the samples will be equivalent to the level of QC effort specified in the standard operating procedures (SOPs) in Appendix 12.1.

The level of QC effort for the field measurements of pH and specific conductance will be as described in the SOPs in Appendix 12.1. Temperature readings will be obtained with pH measurements. Water level measurements will be to the nearest 0.01 ft. using an electric sounding water level meter.

12.3.2 Accuracy, Precision and Sensitivity of Analyses

The fundamental QA objective with respect to accuracy and precision of laboratory analytical data is to achieve the QC acceptance criteria of the analytical protocols. The sensitivities required for the analyses will be at least the targeted quantitation limits in Tables 12.3 through 12.6. It should be noted that the quantitation limits listed are targeted quantitation limits. Actual sample quantitation limits are highly matrix dependent.

SOPs for laboratory analyses are provided in Appendix 12.1. These include the required accuracy, precision, sensitivity of the analyses. SOPs for the field equipment to measure pH, conductivity and temperature are also provided in Appendix 12.1.

12.3.3 Completeness, Representativeness and Comparability

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount that was expected to be obtained under normal conditions. It is expected that the

TABLE 12.3

TARGETED QUANTITATION LIMITS FOR TCL/TAL ANALYSES
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

	Targeted Quantitation Limits [1]	
	Water (µg/L)	*Low Soil/Sediment* (µg/kg)
Semi-Volatile Organic Compounds		
acenaphthene	10	330
acenaphthylene	10	330
anthracene	10	330
benzo(a)anthracene	10	330
benzo(a)pyrene	10	330
benzo(b)fluoranthene	10	330
benzo(g,h,i)perylene	10	330
benzo(k)fluoranthene	10	330
bis(2-chloroethoxy)methane	10	330
bis(2-chloroethyl)ether	10	330
2,2'-oxybis(1-chloropropane)	10	330
bis(2-ethylhexyl)phthalate	10	330
butylbenzylphthalate	10	330
4-bromophenylphenyl ether	10	330
carbazole	10	330
4-chloroaniline	10	330
2-chloronaphthalene	10	330
4-chlorophenyl phenyl ether	10	330
chrysene	10	330
dibenz(a,h)anthracene	10	330
dibenzofuran	10	330
1,2-dichlorobenzene	10	330
1,3-dichlorobenzene	10	330
1,4-dichlorobenzene	10	330
3,3'-dichlorobenzidine	50	660
diethylphthalate	10	330
dimethylphthalate	10	330
di-n-butyphthalate	10	330
di-n-octylphthalate	10	330
2,4-dinitrotoluene	10	330
2,6-dinitrotoluene	10	330
fluoranthene	10	330
fluorene	10	330
hexachlorobenzene	10	330
hexachlorobutadiene	10	330
hexachlorocyclopentadiene	10	330
hexachloroethane	10	330
indeno(1,2,3-cd)pyrene	10	330
isophorone	10	330
2-methylnaphthalene	10	330

TABLE 12.4

TARGETED QUANTITATION LIMITS FOR FINAL EFFLUENT ANALYSES
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

	Targeted Quantitation Limits [1]
	Water (µg/L)
Volatile Organic Compounds	
acetone	10
benzene	5
1,1-dichloroethane	5
1,2-dichloroethane	5
1,1-dichloroethene	5
1,2-dichloroethene (total)	5
ethylbenzene	5
methylene chloride	5
methyl ethyl ketone (2-butanone)	10
methyl isobutyl ketone (4-methyl-2-pentanone)	10
toluene	5
1,1,1-trichloroethane	5
trichloroethene	5
xylenes (total)	5
Base/Neutral Compounds	
bis(2-ethylhexyl)phthalate	10
isophorone	10
2-methylnapthalene	10
naphthalene	10
Acid Compounds	
4-chloro-3-methylphenol (p-chloro-m-aresol)	10
phenol	10
2-methylphenol	10
4-methylphenol	10

TABLE 12.4

TARGETED QUANTITATION LIMITS FOR FINAL EFFLUENT ANALYSES
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

	Targeted Quantitation Limits [1]
	Water (μg/L)
Metals	
antimony [2]	7
arsenic	3
iron	20
aluminum	50
barium	5
calcium	100
chromium (total)	10
cobalt	10
copper [2]	1
lead [2]	1
magnesium (dissolved)	50
manganese	5
nickel (dissolved)	20
potassium	200
zinc	10

[1] Actual sample quantitation limits are highly matrix and laboratory dependant and are not always achievable. Targeted quantitation limits presented are for guidance only and may not be achievable.

[2] Targeted quantitation limit is the instrument detection limit.

12.4 SAMPLING PROCEDURES

The following subsections present the sampling procedures for the various media at the Site.

12.4.1 Equipment Cleaning

All sampling equipment which may come in contact with potentially contaminated materials shall be decontaminated prior to field use and after each sample is collected to prevent cross-contamination of the samples. Duplicate samples shall be collected concurrently with original samples, therefore, sampling equipment will not be decontaminated before collection of the duplicate. Decontamination of equipment will be performed as follows:

i) clean water and non-phosphate detergent wash using a brush, if necessary, to remove all visible foreign matter;
ii) rinse thoroughly with potable water;
iii) rinse with isopropyl alcohol;
iv) rinse thoroughly with deionized water; and
v) allow the equipment to air dry on a clean plastic sheet as long as possible.

Following final rinse, openings will be visually inspected to verify they are free of soil particulates and other solid material which may contribute to possible sample cross-contamination.

Fluids used for cleaning will not be recycled. All wash water, rinse water and decontamination fluids will be treated in the on-Site treatment system.

12.7 ANALYTICAL PROCEDURES

The samples collected for chemical analyses will be analyzed using the methods listed in Table 12.8 and detailed in the respective SOPs included in Appendix 12.1. The rationale for selection of the parameters is based on the Statement of Work referenced in Section 12.1. It should be noted that at the end of the first year of monitoring, the results shall be evaluated and reviewed and a Site-specific parameter (indicator) list (SSPL) will be developed and submitted to USEPA and OEPA for modification and/or approval. Samples collected from subsequent monitoring events will be analyzed for the approved SSPL.

TABLE 12.8

SUMMARY OF ANALYTICAL METHODS
SUMMIT NATIONAL SUPERFUND SITE
DEERFIELD TOWNSHIP OF PORTAGE COUNTY, OHIO

Matrix	*Parameter* [1]	*Method of Analysis*
Sediment	TCL VOC	SOP for SW-846 [2] 8240
	TCL SVOC	SOP for SW-846 3550, 8270
	TCL PCB/Pesticides	SOP for SW-846 3550, 8080
	TAL Metals	SOP for SW-846 3050, 6010/7000 series
	Cyanide	SOP for SW-846 9010
Surface/Groundwater	TCL VOC	SOP for SW-846 8240
	TCL SVOC	SOP for SW-846 3520, 8270
	TCL PCB/Pesticides	SOP for SW-846 3520, 8080
	TAL Metals	SOP for SW-846 3005, 3020, 6010/7000 series
	Cyanide	SOP for SW-846 9010
Residential Water	TCL VOC	SOP for SW-846 8260 (low level)
	TCL SVOC	SOP for SW-846 3520, 8270 (low level)
	TCL PCB/Pesticides	SOP for SW-846 3520, 8080 (low level)
	TAL Metals	SOP for SW-846 3005, 3020, 6010/7000 series (low level)
	Cyanide	SOP for SW-846 9010 (low level)
Effluent Water	OEPA VOC	SOP for SW-846 [3] 8240
	OEPA BNA	SOP for SW-846 8270
	OEPA Metals	SOP for SW-846 3005, 3020, 6010/7000 Series
Air	PPL VOC	SOP for EPA-MCA 624/TO-14 [4]

[1] TCL = Target Compound List
VOC = Volatile Organic Compounds
SVOC = Semi-volatile Organic Compounds
PCB = Polychlorinated Biphenyls
OEPA = Ohio Environmental Protection Agency final effluent monitoring requirements
BNA = Base/Neutral and Acid Extractable Organic Compounds
PPL = Priority Pollutant List

[2] SW-846 - "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", EPA SW-846, 3rd edition, November 1986.

[3] EPA-MCA - "Methods for Organic Chemical Analysis of Industrial and Municipal Wastewater", EPA 600/4-82-057, July 1982.

[4] TO-14 - "The Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Summa® Passivated Canister Sampling and Gas Chromatographic Analysis", USEPA Compendium Method TO-14.

12.12 SPECIFIC ROUTINE PROCEDURES USED TO ASSESS DATA PRECISION, ACCURACY AND COMPLETENESS

The following sections include the procedures and formulae utilized to assess the levels of precision, accuracy and completeness achieved during the associated sample analyses.

12.12.1 Field Measurements

Field data will be assessed by the QA/QC Officer Analytical and Field Activities who will review the field results for compliance with the established QC criteria that are specified in the QAPP. Accuracy of the field measurements will be assessed using daily instrument calibration, calibration check, and analysis of blanks. Precision will be assessed on the basis of the reproducibility of duplicate readings of a single sample. Data completeness will be calculated using the following equation:

$$\text{Completeness (\%)} = \frac{\text{Valid (Usable) Data Obtained}}{\text{Total Data Planned}} \times 100$$

The required level of completeness will be 90 percent or greater.

12.12.2 Laboratory Data

Laboratory results will be assessed for compliance with required precision, accuracy, completeness and sensitivity as follows:

12.12.2.1 Precision

Precision of laboratory analysis will be assessed by comparing the analytical results between MS/MSD for organic analysis, and MS/MSD or laboratory duplicate analyses for inorganic analysis. The relative percent difference (RPD) will be calculated for each pair of duplicate analyses as discussed in Section 12.12.3.

12.12.2.2 Accuracy

Accuracy of laboratory results will be assessed for compliance with the established QC criteria that are described in Sections 12.3 and 12.8 of the QAPP using the analytical results of method blanks, reagent/preparation blank, MS/MSD samples, field blank and trip blanks. The percent recovery (%R) of matrix spike samples will be calculated as discussed in Section 12.12.3.

12.12.2.3 Completeness

Completeness will be assessed by comparing the number of usable results to the total possible number of results using the formula presented in Section 12.12.1. The required level of completeness for laboratory analyses will be 90 percent or greater.

12.12.2.4 Sensitivity

The achievement of targeted quantitation limits depend on instrumental sensitivity and matrix effects. Therefore, it is important to monitor the instrumental sensitivity to ensure the data quality through constant instrument performance. The instrumental sensitivity will be monitored through the analysis of method blank and calibration check standards.

TABLE OF CONTENTS